



# CHESTERFIELD COUNTY WATER AND SEWER SPECIFICATIONS

## THIRD EDITION

### ADDENDUM #4 - LIST OF CHANGES October 20, 2004

Legend:

Strikethrough = words deleted

Red or Highlighted = words added

## PART I

** PAGE # **	*** CHANGE ***
DS-13	First paragraph – Changed as follows: “Sanitary sewage force mains shall be ductile iron (Class 52) <b>or approved equal. A higher class if the design parameters require a thicker pipe.</b> For 12" and smaller, PVC C-900 <b>or other approved water type pipe</b> may be used. Force mains to be designed with a minimum flow velocity of 3.0 feet per second, a maximum flow velocity of 8.0 feet per second; and a Hazen-Williams "C" value of 120. Minimum size shall be 4 inches in diameter. A constant grade shall be used where feasible. <b>Minimum ground cover shall be same as required for water lines or deeper where necessary to accommodate water services and/or future water lines, etc.</b> Valves and air releases will be provided at appropriate locations.
DS-14	Reformatted page.

## PART II

NO CHANGES AT THIS TIME

## PART III

** PAGE # **	*** CHANGE ***
	Changed Table of Contents to reflect changes in Part III.
6-2	2.02 Pipe Bedding <b>for Gravity Sanitary Sewers</b>  3.01 Installation of New <b>Gravity</b> Sanitary Sewer <b>and Force Main</b> Systems
6-3	3.01 A 2. Changed first sentence as follows:  Removal of subsurface obstructions, which are uncovered during excavation for installation of the <b>gravity</b> sanitary sewer <b>and force main</b> systems shall be by the Contractor at his expense.  3.01 B. 3. Changed as follows:  Survey Line and Grade <b>for Gravity Sanitary Sewers</b> :
6-4	3.01 B. 4. Changed as follows:  Sewer Pipe Laying <b>for Gravity Sanitary Sewers</b> :
6-5	3.01 B. 4. Changed as follows:  <b>g. Pipe laying and joining for force mains shall be the same as the requirements for water lines.</b>  <b>gh.</b> All visible leaks shall be corrected before testing.  <b>hi.</b> PVC pipe shall be provided with anti-flotation ballast where cover is less than 3'.
6-6	Reformatted page.
6-7	Added the following:  <b>F. A tracing wire of 14 gauge copper shall be installed and taped directly on top of the pipe in a manner that a continuous trace results.</b>  <b>G. Place underground warning tape directly above all sewer force mains, 18" below finished grade. Tape shall be polyethylene tape with a metallic core, 2 inches in width, with the continuous printed message "Caution Sewer Force Main Buried Below." Tape shall be as manufactured by the Seton Name Plate Corp. or approved equal.</b>  3.02 Testing of New <b>Gravity</b> Sanitary Sewer <b>and Force Main</b> Systems

	A. Testing Technique for <b>Gravity</b> Sanitary Sewer System:
6-8 thru 6-10	Reformatted pages
<p style="text-align: center;"><b>PART IV</b></p>	
<b>** PAGE # **</b>	<b>*** CHANGE ***</b>
	Changed Table of Contents to reflect changes in Part IV.
2-1	2.02 Pipe Bedding <b>for Gravity Sanitary Sewers</b>
2-2	<p>3.01 Installation of New <b>Gravity</b> Sanitary Sewer <b>and Force Main</b> Systems</p> <p>3.01 A. 2. Changed first sentence as follows:</p> <p>Removal of subsurface obstructions which are uncovered during excavation for installation of the <b>gravity</b> sanitary sewer <b>and force main</b> systems shall be by the Contractor at his expense.</p>
2-3	<p>3.01 B. 3. Survey Line and Grade <b>for Gravity Sanitary Sewers</b>:</p> <p>3.01 B. 4. Sewer Pipe Laying <b>for Gravity Sanitary Sewers</b>:</p>
2-4	<p>3.01 B. 4. f. Joining Pipe <b>for Gravity Sanitary Sewers</b>:</p> <p>3.01 B. 4. Changed as follows:</p> <p style="padding-left: 40px;"><b>g. Pipe laying and joining for force mains shall be the same as the requirements for water lines.</b></p> <p style="padding-left: 40px;"><b>gh. All visible leaks shall be corrected prior to testing.</b></p> <p style="padding-left: 40px;"><b>hi. PVC pipe shall be provided with anti-flotation ballast where cover is less than 3'.</b></p>
2-5	Reformatted page.
2-6	<p>3.01 Added the following:</p> <p style="padding-left: 40px;"><b>F. A tracing wire of 14 gauge copper shall be installed and taped directly on top of the pipe in a manner that a continuous trace results.</b></p> <p style="padding-left: 40px;"><b>G. Place underground warning tape directly above all sewer force mains, 18" below finished grade. Tape shall be polyethylene tape with a metallic core, 2 inches in width, with the continuous printed message "Caution Sewer Force Main Buried Below." Tape shall be as manufactured by the Seton Name Plate</b></p>

	<b>Corp. or approved equal.</b>
2-7	3.02 Testing of New <b>Gravity</b> Sanitary Sewer <b>and Force Main Systems</b> :  3.02 A. Testing Technique for <b>Gravity</b> Sanitary Sewer System:
2-8	Reformatted page.
3-4	3.01 B. 5. g. 1) (a) Mechanical <del>p</del> joint pipe
3-5	3.01 B. 5. g. 1) (b) Push-on <del>p</del> joint Ductile Iron pipe
APP A-5 thru APP A-8	Typographical error.
<b>PART V</b>	
<b>** PAGE # **</b>	<b>*** CHANGE ***</b>
	Changed Table of Contents to reflect changes in Part V.
V-1-9	I. Couplings 1. Added the following:  <b>f. Ford FC2W (Wide Range)</b>
V-1-11	Q. 2. d. STARGRIP Series 300 (MJ Fittings) Sizes 4" – 24 <b>48"</b>
V-2-1 & V-2-2	A. Pipes – <b>Gravity</b>  Added the following:  <b>Pipe – Pressure</b>  <b>1. C-900 or C-909 – P.V.C. (DR-18, CL. 150) (Sizes 6", 8" &amp; 12")</b>  <b>2. a. Class 52 minimum or higher classification depending upon design consideration. (Push-on and Mechanical Joint) (6", 8", 12", 16", 20", 24", 30" &amp; 36")</b>  <b>b. Restrained Joint Pipe (Pipe Application: Use only where mechanical joint pipe is not available or in vertical applications).</b>  <b>1) Griffin Snap-Lok (6" – 30")</b> <b>2) American D.I. Pipe Flex-Ring (6" – 36")</b> <b>3) U.S. Pipe TR-FLEX (6" – 36")</b> <b>4) Clow Super Lock (30" – 36")</b> <b>5) McWane D. I. (30" – 36")</b>

	<p><b>3. HDPE – DR 11 (4” – 8” only)</b></p> <p>D. Fittings (Gasketed) - <b>Gravity</b></p>
V-2-3	<p>D. Fittings (Gasketed) – Gravity</p> <p>Added the following:</p> <p><b>Fitting (D.I. Only) Pressure</b></p> <p><b>1. D.I. Compact AWWA C153 or D.I./C.I. AWWA C110</b></p> <p><b>2. D.I. Special Coated Compact Fittings AWWA 153</b></p>
V-2-4 thru V-2-5	Reformatted pages.
V-3-15	<del>PIPE: PVC SDR-35</del> <b>GRAVITY SEWER PIPE</b> (Sizes 6”, 8”, 10”, 12” & 15”) ASTM D3034 SDR35
V-3-16	<p><del>PIPE: PVC SDR-35</del> <b>GRAVITY SEWER PIPE</b> (Sizes 18"-48") ASTM F679</p> <p><del>PIPE: ULTRA-RIB PVC</del> <b>GRAVITY SEWER PIPE</b> (21"-36") ASTM F794</p> <p><del>PIPE: PERMA-LOC, PVC</del> <b>GRAVITY SEWER PIPE</b> (21"-36") ASTM F794 Series 46</p> <p><del>PIPE: CARLON VYLON H.C.</del> <b>GRAVITY SEWER PIPE</b> (21"-48") ASTM F794</p>
V-3-17	<p><del>PIPE: ULTRA-CORR</del> <b>GRAVITY SEWER PIPE</b> (24"-36") ASTM F794</p> <p><del>PIPE: CONCRETE</del> <b>GRAVITY SEWER PIPE</b></p> <p><b>DUCTILE IRON GRAVITY SEWER PIPE</b></p> <p><b>MANUFACTURERS:</b></p> <p><b>1. Same as for Approved Water Pipe Manufacturers for PVC and Ductile Iron</b></p> <p><b>PRESSURE SEWER PIPE</b></p> <p><b>MANUFACTURERS:</b></p> <p><b>1. Same as for Approved Water Pipe Manufacturers</b></p> <p><b>2. For HDPE:</b></p> <p><b>DriscoPlex Performance Pipe, a Div. of</b>  <b>Chevron Phillips Chemical Company LP</b>  <b>PO Box 269006</b>  <b>Plano, TX 75026-9006</b></p> <p><b>(800) 527-0662</b>  <b>FAX (972) 599-7348</b></p> <p><del>FITTINGS: PVC SDR-35 GASKETED</del> <b>GRAVITY SEWER FITTINGS</b></p>

V-3-18	<p><del>F</del>ITTINGS: CONCRETE <b>GRAVITY SEWER FITTINGS</b></p> <p><b>PRESSURE SEWER FITTINGS</b></p> <p><b>MANUFACTURERS:</b></p> <p><b>1. Same as approved for water pipe.</b></p>
V-3-19 thru V-3-22	Reformatted page.
V-4-1	A.1. Water Pipe <b>and Fittings</b> :
V-4-23	<p>B.1. <b>Gravity</b> Sewer <b>and Force Main</b> Pipe and Fittings:</p> <p>B.1.a. Reinforced concrete <b>(non-pressure)</b> pipe</p>
V-4-24 & V-4-25	<p>f. Ultra-Corr PVC sewer <b>(non-pressure)</b> pipe</p> <p>g. Ductile iron <b>(gravity or pressure)</b> pipe</p> <p>i. <b><u>Pressure Pipe and fittings</u> shall have either mechanical joint or push-on joint, both conforming to the requirements of AWWA C111. Bolts shall be high strength cast iron having an ultimate tensile strength of 75,000 psi and a minimum yield point of 45,000 psi.</b></p> <p>j. <b><u>Pressure Pipe fittings</u> shall meet the requirements of AWWA C110 (ductile iron or cast iron) or AWWA C153 (ductile iron compact). All fittings shall be Pressure Class 250. Fittings shall have a cement-mortar lining and a bituminous seal coating or a 6-8 mil (nominal thickness) fusion bond epoxy lining/coating in compliance with AWWA C550.</b></p> <p>k. <b><u>Pressure Polyvinyl chloride pipe (PVC)</u> 6", 8", and 12" in size shall conform to the requirements of AWWA Specification C-900, with gasket joints, DR-18 Class 150 with iron pipe O.D. Fittings shall be ductile iron or cast iron, Pressure Class 250, with mechanical joints. Additional criteria as set forth by the County of Chesterfield is outlined in Section 4.C.1. entitled "Supplemental Specifications - Additional Criteria for Polyvinyl Chloride Piping for Water and Sanitary Sewer Systems".</b></p> <p><del>k</del>-l. <b><u>Push-on-joint and rubber gasket</u> shall meet requirements of AWWA C111.</b></p> <p>lm. <b><u>Cement mortar lining</u> with bituminous seal coat for ductile iron pipe and fittings shall meet requirements of AWWA/ANSI C104/A21.4.</b></p> <p>Cement mortar lining shall be standard thickness.</p> <p><del>mn</del>. <b><u>Exterior bituminous coating</u> for cast iron fittings and ductile iron pipe shall meet requirements of AWWA/ANSI C106/A21.6 or AWWA/ANSI C151/A21.51 as applicable.</b></p>
V-4-26 thru V-4-32	Reformatted pages.

